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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,393	06/23/2003	Norio Mutsui	P/1071-1596	8020

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EXAMINER

KOCH, GEORGE R

ART UNIT	PAPER NUMBER
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1734

DATE MAILED: 07/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/601,393	MUTSUI ET AL.	
	Examiner	Art Unit	
	George R. Koch III	1734	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-4 and 6 is/are rejected.
- 7) ☒ Claim(s) 5 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>3/6/2003</u> | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Specification

1. The substitute specification filed 4/15/2004 has not been entered because it does not conform to 37 CFR 1.125(b) and (c) because: The statement as to a lack of new matter under 37 CFR 1.125(b) is missing.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claims 1-4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mori (US Patent 6,096,370) in view of Kuze (US Patent 4,698,192), IBM Technical Disclosure Bulletin NN77044162 and Caldwell (US 5,958,137).

Mori discloses an apparatus for manufacturing a dry sheet from a slurry (item 2), comprising a coating section (item 5) which coats a slurry raw material to be formed into a sheet (item 4) onto a carrier film (item 3) transferred along a predetermined route (as shown in figure 1, with arrows 16 and 17), a thickness adjusting device (see column 6, lines 41-49) which adjusts the thickness of the coating of the slurry raw material disposed on the carrier film, a property measuring device (item 22, a film thickness meter) which measures a predetermined property related to the coating thickness of the slurry raw material disposed on the carrier film. Mori also discloses a raw data calculating means for calculating the adjustment based on the thickness data and discloses that the raw data calculating means can comprise a personal computer. Mori discloses in column 7, lines 34-55 that the raw data calculating means has structure for storing data, in other words, a memory section, and this data is representative of a relation between the thickness of the slurry raw material disposed on the carrier film and

the final thickness of the of the sheet. Mori also discloses that the raw data calculating means has an operational section which calculates output data based on the input, and an output adjusting section which transmits thickness adjusting signals to the thickness adjusting device in response to the comparison result obtained in the operational section (see column 7, lines 49 to column 8, line 9). This raw data calculating means is capable of performing the operations of the operational section, such as estimations and adjustments.

Mori does not disclose a drying section which dries the slurry raw material disposed on the carrier film to form a sheet. With regard to drying, Mori merely recites that the slurry dries on the way to the winding reel (see column 6, lines 34-38). Furthermore, Mori does not disclose measuring the thickness of the slurry raw material in a wet state, or estimating the final thickness from this measurement. Mori does not disclose a density measuring instrument which measures the density of the slurry raw material.

Kuze discloses that it is known to utilize a drying section (item 22). One in the art would immediately appreciate that utilizing a drying section would improve the drying time and allow for either faster processing and/or shorter distances between the slurry coater and the winding reel (item 18 in the case of Mori). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to utilized such a drier in order to achieve faster drying and/or shorter distances between the coater and winding reel.

With regard to measuring the thickness of the slurry in a wet state, IBM Technical Disclosure Bulletin NN77044162 discloses that it is known to measure and correct for the thickness of the ceramic slurry in a wet state (i.e., "freshly doctored"). One in the art would immediately recognize that such a sensor location would imply an estimation of the final thickness based on the wet state and would have the benefit of being closer to the coating application site and thus provide quicker feedback to the control as to the result of the coating operation. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized such a wet state thickness sensor as suggested in IBMTDB NN77044162 in replacement for the final state thickness sensor of Mori in order to acquire quicker feedback onto the coating operation.

As to the density sensors, Caldwell discloses utilizing density sensors for controlling coatings on a film (see items 501 and 502, Figures 3 and 9). The beta gage sensors measures the density of the sheet at points before and after coating, and this measurement would include, as its component, the density of the coating material alone. Caldwell discloses that monitoring the density allows for recognition of coating errors, and can be used with a quality control program to provide corrections (see also column 9, line 26 to column 10, line 4). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have utilized density measuring instruments as in Caldwell in order to identify the quality of the coating on the film.

As to claim 2, Mori discloses using radioactive rays for measuring the thickness of the slurry, in other words, a radiation thickness gauge which would inherently have a

radiation attenuation amount and which would apply the radiation at least in a vector which is in the thickness direction of the slurry raw material.

As to claim 3, Mori discloses that the thickness adjusting device includes a slurry discharging device for feeding a controlled amount of the slurry raw material to the coating section in response to thickness adjusting signals (see Figure 1 and columns 7-8).

As to claim 4, Mori discloses that the coating section includes a slurry coater (item 5, and items 8, 9 10, 11, and 12 - see Figure 2) and a backing roll (item 6), which is arranged to face the slurry coater with an adjustable gap therebetween (see column 6, lines 41-49 for reference to the adjustable gap, referred to as an "altering of the distance between the backing roll and doctoring edge" portion of the slurry coater), the slurry coater being responsive to the thickness adjusting signals and thereby functioning as a thickness adjusting device.

As to claim 6, the raw data calculating means of Mori, as modified by Kuze, IBMTDB-NN77044162, and Caldwell, would be capable of performing the claimed method limitations. It is noted that estimation of the thickness is suggested by the calibration routine of IBMTDB-NN77044162, and that the formula is merely a standard error difference correction formula (the W-c portion) as suggested in the example of calibration in IBMTDB-NN77044162 modified by an user selected constant (the K2 portion).

Allowable Subject Matter

6. Claim 5 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not suggest placing the density measuring instrument for measuring the density of the slurry raw material near at least one of a storing section where the slurry raw material is stored, or a channel through which the slurry raw material is fed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to George R. Koch III whose telephone number is (571) 272-1230 (TDD only). If the applicant cannot make a direct TDD-to-TDD call, the applicant can communicate by calling the Federal Relay Service at 1-800-877-8339 and giving the operator the above TDD number. The examiner can normally be reached on M-Th 10-7.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Crispino can be reached on (571) 272-1226. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Art Unit: 1734

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "GRK" followed by a stylized flourish.

GRK
June 6th, 2004

George R. Koch III
Patent Examiner
Art Unit 1734